LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES
INLAND FISHERIES SECTION

PART VI -B

WATERBODY MANAGEMENT PLAN SERIES

KINCAID LAKE

WATERBODY EVALUATION &
RECOMMENDATIONS

CHRONOLOGY

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WATERBODY EVALUATION

STRATEGY STATEMENT

Recreational

Sportfish species, primarily largemouth bass, are managed to provide a sustainable population while providing anglers the opportunity to catch or harvest adequate numbers of fish to maintain angler interest and efforts.

Commercial

Kincaid Lake has relatively infertile water that is not conducive to the production of commercial fish species. A commercial fisheries management strategy is not used.

Species of Special Concern

No threatened or endangered fish species are known to inhabit this waterbody.

EXISTING HARVEST REGULATIONS

Recreational

Statewide regulations for all fish species, the recreational fishing regulations may be viewed at the link below:
http://www.wlf.louisiana.gov/regulations

Commercial

The commercial fishing regulations may be viewed at the link below:
http://www.wlf.louisiana.gov/regulations

Rapides Parish Ordinance Article I, Section 19.5 -1. Rules and Regulations for Recreational Areas: Part B (4) b3. – prohibits the use of fishing nets, seines, slat traps or similar devices. The complete Rapides Parish Ordinance can be viewed at the following link. This regulation is not a state law thus it cannot be enforced by the LDWF enforcement division personnel. It is enforced by the authority of the local Rapides Parish Sheriff's Office.
http://library.municode.com/index.aspx?clientId=10429

SPECIES EVALUATION

Recreational

Largemouth bass (LMB) populations are targeted for assessment because they are a species indicative of the overall health of the fish population due to their high position in the food chain. Electrofishing is the most efficient sampling method for collecting largemouth bass to evaluate abundance and size distribution, with the exception of large bass. Gill net sampling is generally the preferred method to determine the status of large bass and other large fish species.

Largemouth Bass

Relative abundance, length distribution, and size structure indices

Electrofishing has been used to collect largemouth bass population data in Kincaid Lake since 1994. Springtime electrofishing results are used as an indicator of largemouth bass relative abundance. Total catch-per-unit-effort (CPUE) since 1994 is shown in Figure 1. Sampling was conducted in the spring and fall on a bi-annual basis from 1998 through 2008. Data presented in Figure 2 indicates trends in catch per unit of sampling effort for all largemouth bass size groups are varied. However, the overall trend from 2000 through 2014 indicates an increase in LMB abundance. The increase was likely due to a fall/winter drawdown in 2000/2001. This was the first drawdown since the lake was created in 1972. The drawdown may have improved the predator/prey balance, improved spawning substrate, and increased available nutrients.

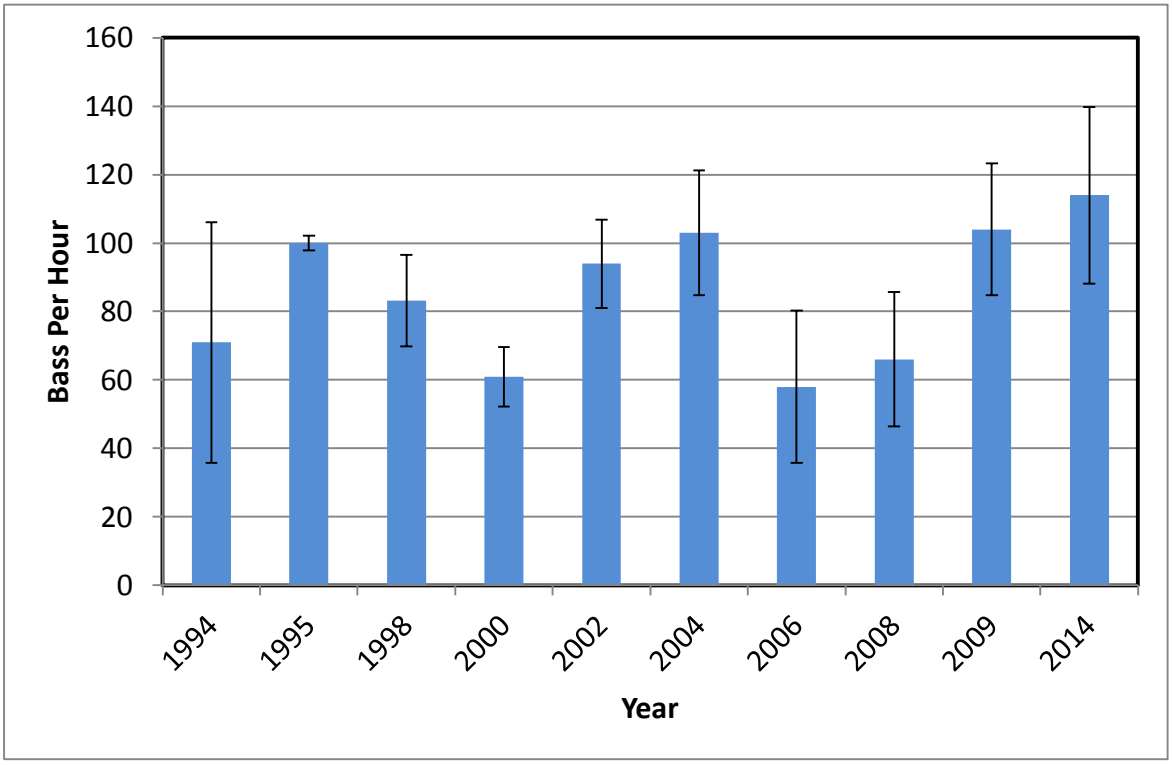

Figure 1. The total CPUE (± SE) for largemouth bass on Kincaid Lake, Louisiana, spring electrofishing results from 1994 – 2014. Error bars represent standard error of total CPUE.

Proportional stock density (PSD) and relative stock density (RSD) are indices used to numerically describe length-frequency data. Proportional stock density compares the number of fish of quality size [greater than 12 inches' total length (TL) for largemouth bass] to the number of bass of stock size (8 inches TL). PSD is expressed as a percent. A fish population with a high PSD consists mainly of larger individuals, whereas a population with a low PSD consists mainly of smaller fish.

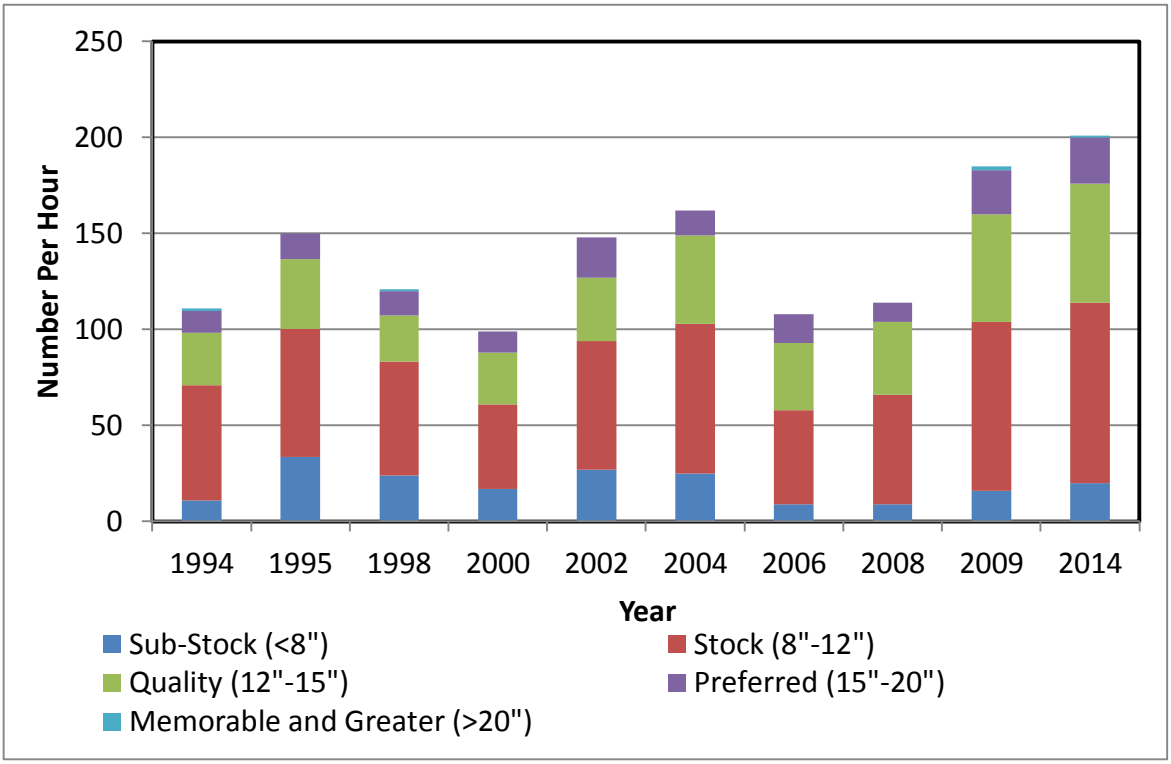

Figure 2. The mean CPUE for stock-, quality-, and preferred-size classes of largemouth bass on Kincaid Lake, Louisiana for spring season from 1994 – 2014.

For example, Figure 3, indicates a PSD of 64 for 2009. This value indicates that 64% of the stock-size bass (fish over 8 inches) in the sample was at least 12 inches or longer. Generally, PSD's between 40 and 60 are considered good for central Louisiana lakes.

$$PSD = \frac{\text{Number of bass >12 inches}}{\text{Number of bass >8 inches}} \text{ x100}$$

Relative stock density (RSD) is the proportion of largemouth bass in a stock (fish over 8 inches) that are 15 inches or longer.

$$RSD = \frac{\text{Number of bass >15 inches}}{\text{Number of bass >8 inches}} \text{ x100}$$

Trends in largemouth bass structural indices indicate PSD and RSD values have remained relatively stable from 2000 through 2014. This may be expected in upland reservoirs with relatively infertile water and stable habitat.

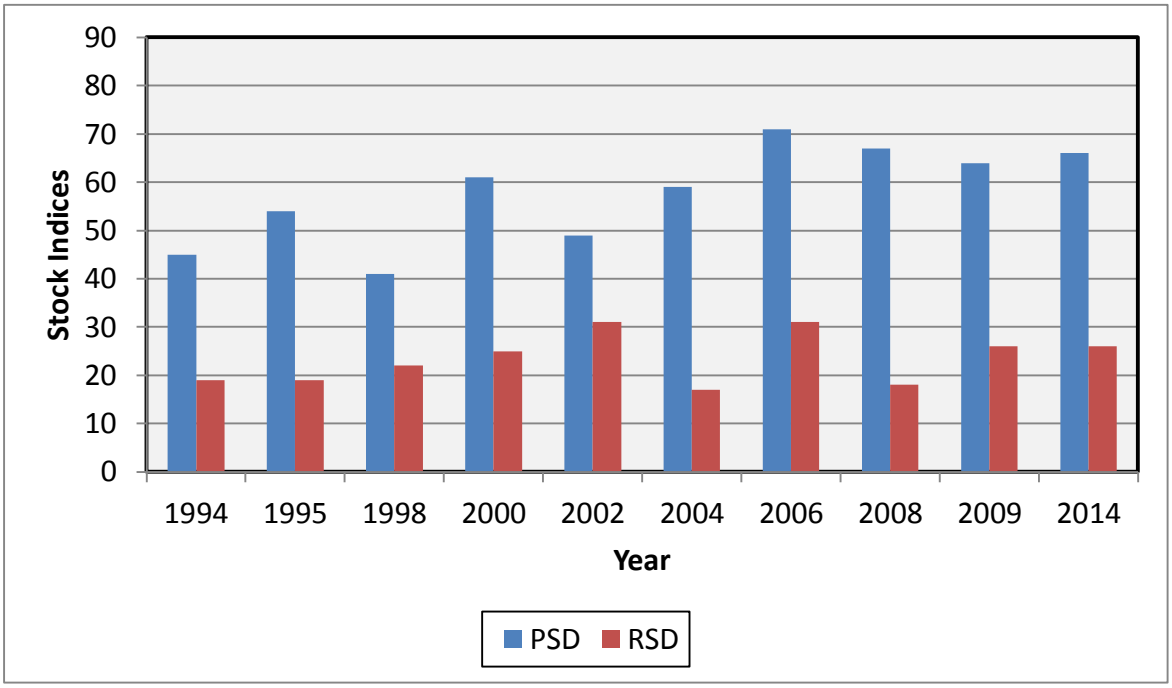

Figure 3. The size structure indices (PSD and RSD-p) for largemouth bass collected from Kincaid Lake, Louisiana for spring electrofishing samples from 1994 – 2014.

The most recent length distribution data for largemouth bass collected during spring and fall electrofishing in 2014 is presented in Figure 4. Bass ranged from 4 inches TL to 21 inches TL with the most abundant groups centered on two peaks: 6 to 7 inches and 12 to 13 inches TL. Based on previous growth rates, bass in the 4 – 7 inch groups are typically young-of-the-year (YOY) and age 1+ recruits. The numbers of young bass in the sample indicate that adequate reproduction is occurring in Kincaid Lake.

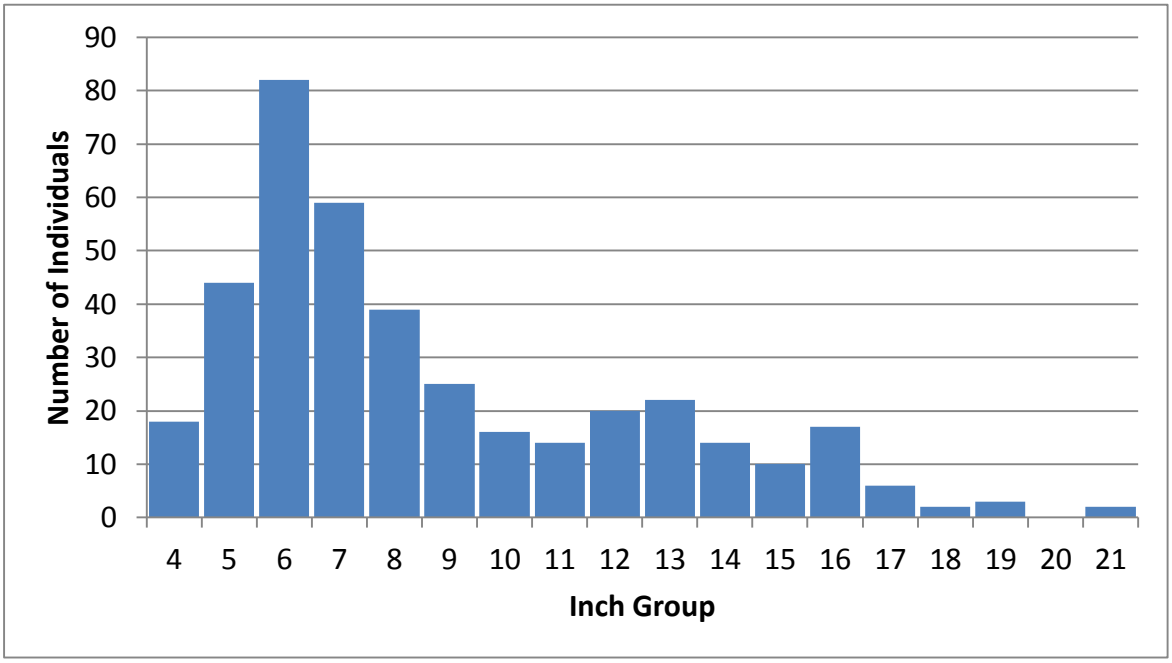

Figure 4. The length distribution of largemouth bass in Kincaid Lake, Louisiana from electrofishing sampling results for spring and fall of 2014. N = 393.

Largemouth bass age and growth

Age and growth data were collected from 31 LMB in the fall of 1990. Additional age and growth data were collected in 2008. The results of these samples are listed in Figure 5. Growth rates for 1+ and 2+ year old bass were below the state average but growth rates reached the state average by age 3+. However, due to the small sample sizes, additional age and growth data is needed.

Figure 5. Average length at age of capture for largemouth bass in Kincaid Lake, Louisiana 1990 (n = 31) and 2008 (n=54).

Largemouth bass genetics

Florida largemouth bass (FLMB) stockings have achieved limited success in Kincaid Lake. Stockings were conducted in 2007, 2008 and 2013. Genetic analysis was conducted on largemouth bass samples in 2006, 2008 and 2009. See Table 1 for the genetic testing results.

Table 1. LMB genetic testing results for Kincaid Lake, Louisiana, 2006, 2008 and 2009.

Year	% Northern	% Florida	% Hybrids	Total FLMB Influence %
2006	83 (N=34)	0	17 (N=7)	17
2008	95 (N=77)	0	5 (N=4)	5
2009	92 (N=184)	0	8 (N=16)	8

Forage

Forage availability is measured through two methods. These include summertime shoreline sampling with haul seines and fall electrofishing. Shoreline seining and forage electrofishing results can be found in Figures 6 and 7. The two major fish groups represented in the forage samples were sunfishes and silversides. Forage availability is also measured indirectly through measurement of largemouth bass body condition or relative weight. Relative weight (Wr) is

the ratio of a fish's weight to the weight of a "standard" fish of the same length. The index is calculated by dividing the weight of a fish by the standard weight for its length and multiplying the quotient by 100. Largemouth bass relative weights below 80 may indicate a potential problem with forage availability. The relative weights of LMB collected from Kincaid Lake have been relatively stable for all size classes since 1995. Relative weight sampling results (Figure 8) indicate that Kincaid Lake relative weights for largemouth bass are within an acceptable range.

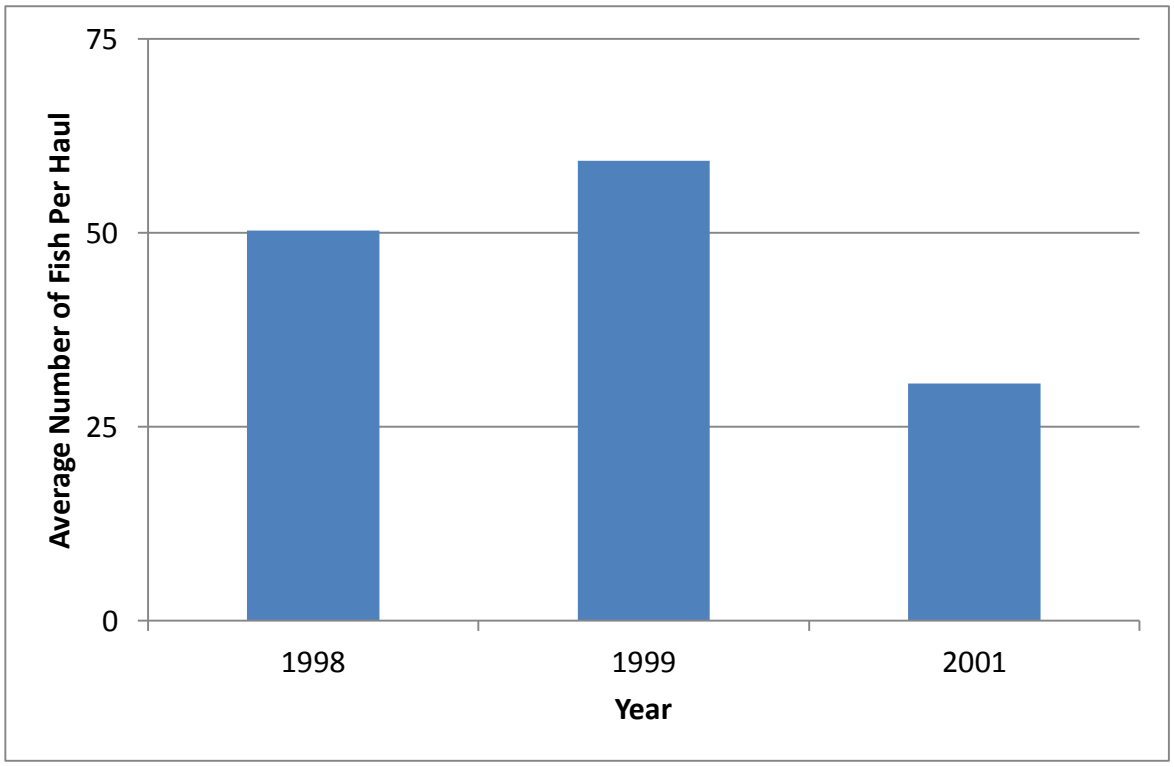

Figure 6. CPUE (average number per seine haul) of fish from shoreline seining for Kincaid Lake, LA, for 1998, 1999, and 2001.

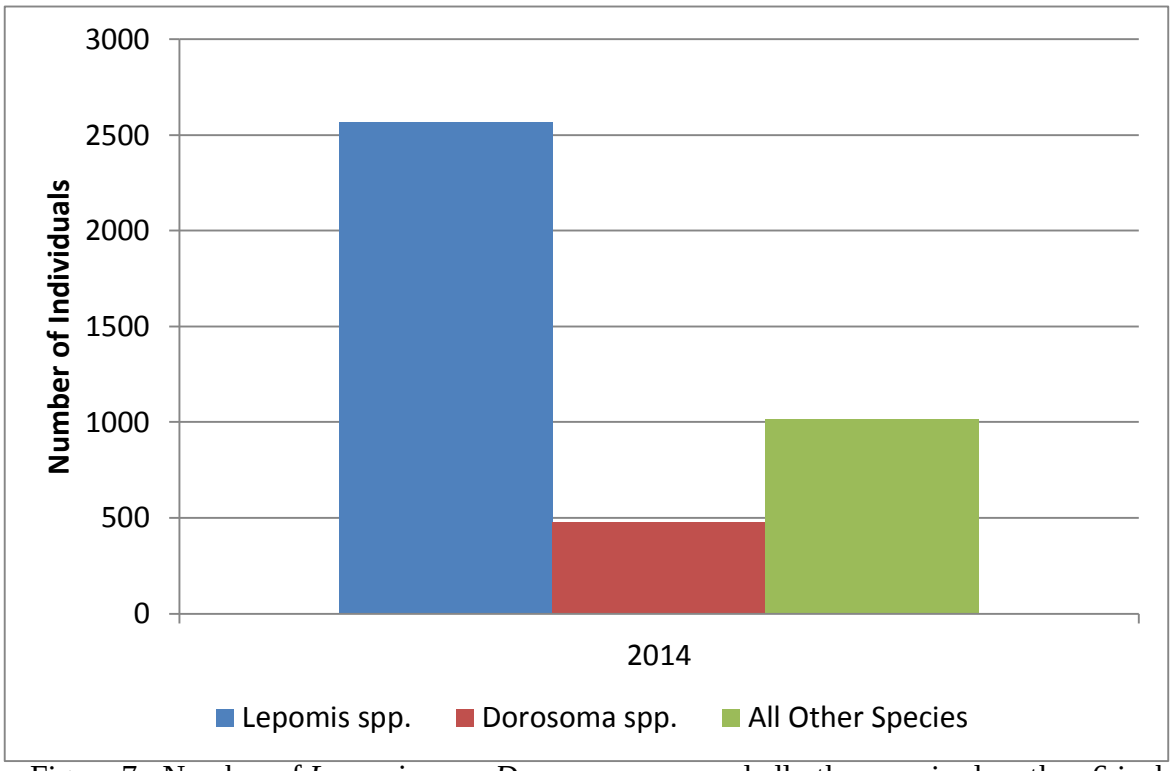

Figure 7. Number of *Lepomis* spp., *Dorosoma* spp., and all other species less than 6 inches TL captured in standardized fall forage samples on Kincaid Lake, LA from 2014.

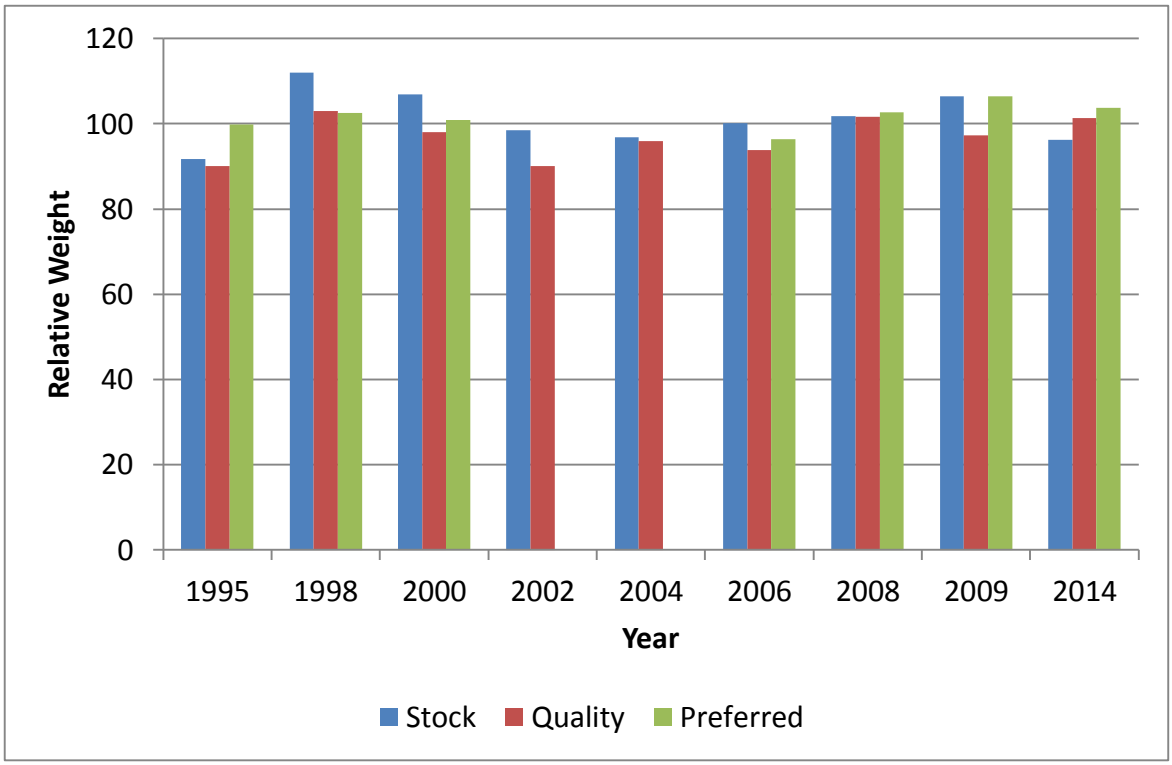

Figure 8. Relative weights for stock-, quality-, and preferred-size classes of largemouth bass collected during fall electrofishing for Kincaid Lake, Louisiana from 1995 – 2014.

Crappie

Kincaid Lake habitat is suitable for the production of black crappie. A review of sampling results back to 1975 found no record of white crappie in Kincaid Lake. Historical biomass (rotenone) sampling results from 1975 through 1987 indicated low crappie abundance. The standing crop estimates averaged 2.9 pounds of black crappie per acre in Kincaid Lake (Figure 9). Additional sampling for crappie was conducted with lead nets in 2009 and 2010. The results indicated a crappie population similar to other clear, infertile central Louisiana lakes. Results are found in Figure 10.

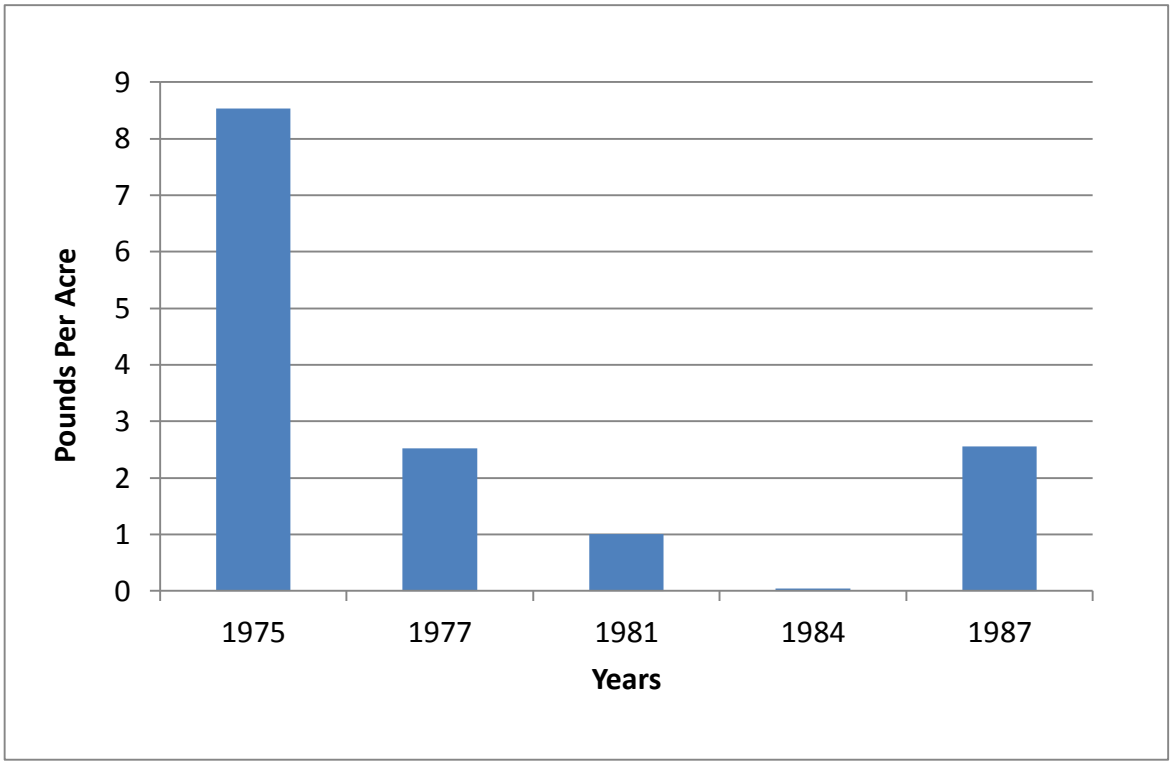

Figure 9. The standing crop (rotenone) estimates for black crappie in Kincaid Lake, Louisiana from 1975 through 1987.

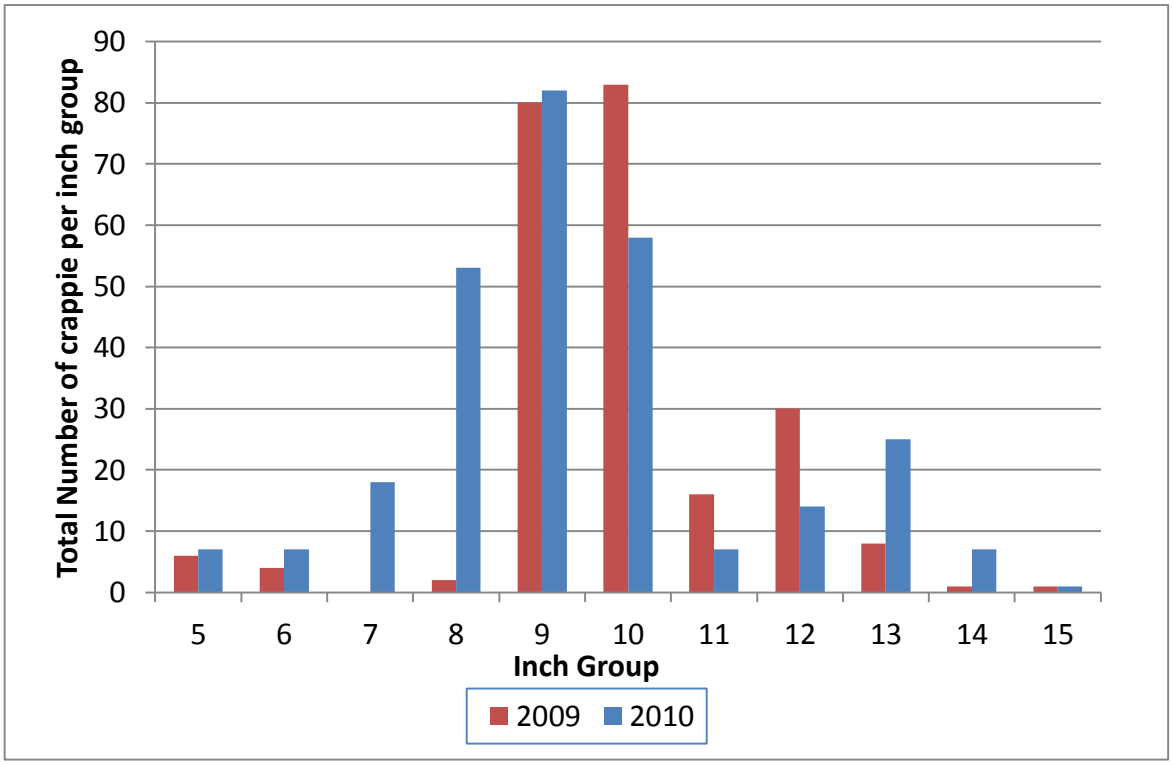

Figure 10. Black crappie length distributions from lead net sampling results in Kincaid Lake, Louisiana for 2009 and 2010.

Commercial

Large rough fish species that normally comprise a commercial fishery are not present, and a viable commercial fishery does not exist in Kincaid Lake. Gill net sampling was conducted in 2001, 2005 and 2008. Channel catfish were the only commercial species collected, and abundance appeared to be low. Gill nets results are found in Figure 11.

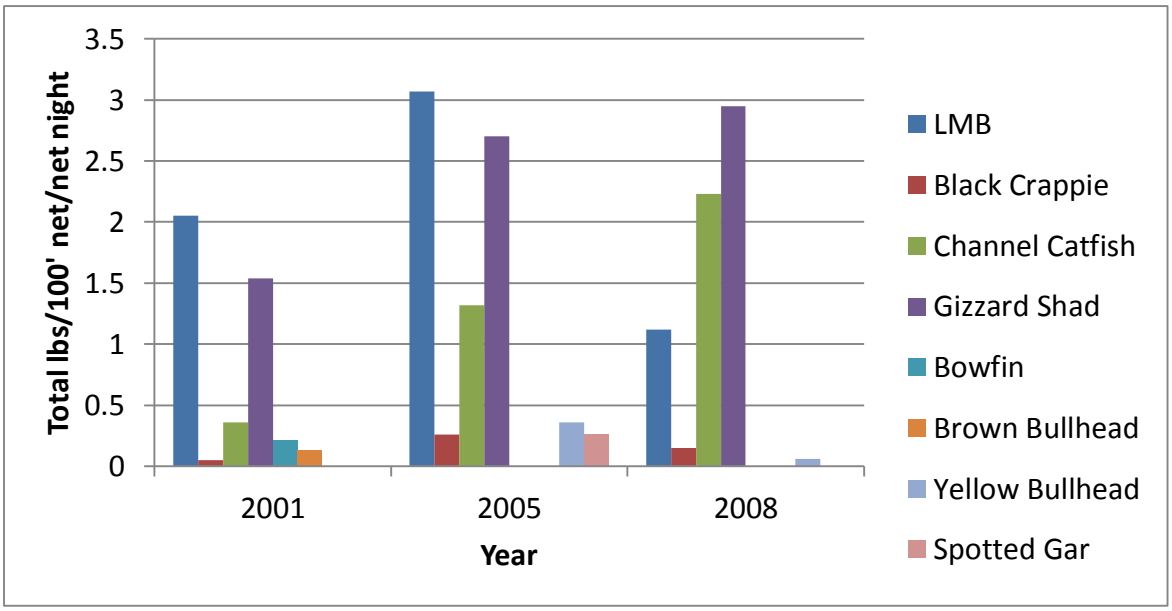

Figure 11. Total CPUE (in pounds per net night) by species by year for Kincaid Lake, Louisiana, collected with standardized gill nets in 2001, 2005 and 2008.

Species of Special Concern

No threatened or endangered fish species are known to inhabit this waterbody.

HABITAT EVALUATION

Aquatic Vegetation

A vegetation assessment was conducted on July 27, 2017. There were approximately 200 acres of submersed vegetation growing out to 7.5 ft. Hydrilla was the dominant submersed plant with a mixture of coontail, bladderwort, and chara. Emergent plants consisted of pondweed, torpedo grass, American lotus, and white water lily. There were approximately 90 acres of emergent vegetation. Floating vegetation consisted of giant salvinia and water hyacinth. There were approximately 10 acres of giant salvinia and 10 acres of water hyacinth.

LDWF will continue to be monitor hydrilla growth in the lake. The south part of the lake, which had been topped out with hydrilla in the 2016 survey, was not as abundant in 2017. However, hydrilla was observed on the east and west banks of the lake where it was not present in the 2016 assessment. Giant salvinia will also need to be monitored and sprayed when required.

Substrate

Kincaid Lake receives little sedimentation from its watershed and turbidity is minimal. The majority of the watershed lies within the Kisatchie National Forest. There is no row crop agriculture in the watershed. The lake bottom substrate consists primarily of coarse and medium grain sands which provide excellent spawning areas for nesting fish.

Artificial Structure

LDWF has not placed artificial structure in Kincaid Lake. In 2010, the United States Forest Service initiated a program to improve fish habitats by submerging Christmas trees in the lake. The only additional manmade structures found in the lake consist of boat docks and piers.

CONDITION IMBALANCE / PROBLEM

Kincaid Lake sufficiently provides watershed protection, agriculture irrigation, and recreational opportunities. The impoundment is infertile, but it does support a sustainable fish population to the level that maintains recreational angler interest and efforts. Fortunately, Kincaid Lake is not impaired by many of the problems experienced on other Louisiana impoundments.

CORRECTIVE ACTION NEEDED

No corrective action is warranted for Kincaid Lake at this time.

RECOMMENDATIONS

1. Continue existing harvest regulations until LDWF sampling results indicate that change is appropriate and necessary from a biological perspective, or until such time as a change in management strategy is indicated by the collective opinion of Kincaid Lake anglers.

2. Continue LDWF standardized fisheries sampling.

3. LDWF spray crews will spray emergent vegetation as needed in accordance with the approved LDWF Herbicide Application Procedures A mixture of diquat (0.25 gal/acre) and glyphosate with Turbulence (or approved equivalent, 0.25 gal/acre) surfactant may be applied to salvinia infestations from April 1 – October 31. Outside of that time frame, it will be treated with diquat (0.75 gal/acre) and a non-ionic surfactant. Alligator weed will be controlled with imazapyr (0.5 gal/acre) in undeveloped areas and with Clearcast (0.5 gal/acre) near houses and developed shorelines. Turbulence surfactant (or approved equivalent, 0.25 gal/acre) will be used with these two herbicides to increase efficacy.